

What is claimed is:

1. A relevant document display apparatus for displaying a group of documents containing documents to be cross-referenced, comprising:
- 5 a document group analysis device for classifying a plurality of documents forming a set of documents into one or more group of documents to be cross-referenced by analyzing a reference between the plurality of documents forming the set of documents, and for extracting information about classification as document group information;
- 10 a document group keyword extraction device for extracting a keyword contained in a document forming part of each group of documents by referring to the document group information; and
- 15 a document group keyword display device for displaying a title relevant to each group of documents and a corresponding keyword extracted from the group of documents by said document group keyword extraction device.
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2. The apparatus according to claim 1, wherein said document group keyword device displays with
- 25 enhancement a group of documents containing a document

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Case	Age	Sex	Site	Pathologic	Survival
1	60	M	Rectum	Adenocarcinoma	10 months
2	65	M	Rectum	Adenocarcinoma	12 months
3	70	M	Rectum	Adenocarcinoma	18 months
4	75	M	Rectum	Adenocarcinoma	24 months
5	80	M	Rectum	Adenocarcinoma	30 months
6	85	M	Rectum	Adenocarcinoma	36 months
7	90	M	Rectum	Adenocarcinoma	42 months
8	95	M	Rectum	Adenocarcinoma	48 months
9	100	M	Rectum	Adenocarcinoma	54 months
10	105	M	Rectum	Adenocarcinoma	60 months
11	110	M	Rectum	Adenocarcinoma	66 months
12	115	M	Rectum	Adenocarcinoma	72 months
13	120	M	Rectum	Adenocarcinoma	78 months
14	125	M	Rectum	Adenocarcinoma	84 months
15	130	M	Rectum	Adenocarcinoma	90 months
16	135	M	Rectum	Adenocarcinoma	96 months
17	140	M	Rectum	Adenocarcinoma	102 months
18	145	M	Rectum	Adenocarcinoma	108 months
19	150	M	Rectum	Adenocarcinoma	114 months
20	155	M	Rectum	Adenocarcinoma	120 months
21	160	M	Rectum	Adenocarcinoma	126 months
22	165	M	Rectum	Adenocarcinoma	132 months
23	170	M	Rectum	Adenocarcinoma	138 months
24	175	M	Rectum	Adenocarcinoma	144 months
25	180	M	Rectum	Adenocarcinoma	150 months
26	185	M	Rectum	Adenocarcinoma	156 months
27	190	M	Rectum	Adenocarcinoma	162 months
28	195	M	Rectum	Adenocarcinoma	168 months
29	200	M	Rectum	Adenocarcinoma	174 months
30	205	M	Rectum	Adenocarcinoma	180 months
31	210	M	Rectum	Adenocarcinoma	186 months
32	215	M	Rectum	Adenocarcinoma	192 months
33	220	M	Rectum	Adenocarcinoma	198 months
34	225	M	Rectum	Adenocarcinoma	204 months
35	230	M	Rectum	Adenocarcinoma	210 months
36	235	M	Rectum	Adenocarcinoma	216 months
37	240	M	Rectum	Adenocarcinoma	222 months
38	245	M	Rectum	Adenocarcinoma	228 months
39	250	M	Rectum	Adenocarcinoma	234 months
40	255	M	Rectum	Adenocarcinoma	240 months
41	260	M	Rectum	Adenocarcinoma	246 months
42	265	M	Rectum	Adenocarcinoma	252 months
43	270	M	Rectum	Adenocarcinoma	258 months
44	275	M	Rectum	Adenocarcinoma	264 months
45	280	M	Rectum	Adenocarcinoma	270 months
46	285	M	Rectum	Adenocarcinoma	276 months
47	290	M	Rectum	Adenocarcinoma	282 months
48	295	M	Rectum	Adenocarcinoma	288 months
49	300	M	Rectum	Adenocarcinoma	294 months
50	305	M	Rectum	Adenocarcinoma	300 months
51	310	M	Rectum	Adenocarcinoma	306 months
52	315	M	Rectum	Adenocarcinoma	312 months
53	320	M	Rectum	Adenocarcinoma	318 months
54	325	M	Rectum	Adenocarcinoma	324 months
55	330	M	Rectum	Adenocarcinoma	330 months
56	335	M	Rectum	Adenocarcinoma	336 months
57	340	M	Rectum	Adenocarcinoma	342 months
58	345	M	Rectum	Adenocarcinoma	348 months
59	350	M	Rectum	Adenocarcinoma	354 months
60	355	M	Rectum	Adenocarcinoma	360 months
61	360	M	Rectum	Adenocarcinoma	366 months
62	365	M	Rectum	Adenocarcinoma	372 months
63	370	M	Rectum	Adenocarcinoma	378 months
64	375	M	Rectum	Adenocarcinoma	384 months
65	380	M	Rectum	Adenocarcinoma	390 months
66	385	M	Rectum	Adenocarcinoma	396 months
67	390	M	Rectum	Adenocarcinoma	402 months
68	395	M	Rectum	Adenocarcinoma	

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20 a document group structure display device for
displaying cross-references in each group of documents
in a tree structure in which the document attribute
information or abbreviated information for each
document forming part of the group of documents is
displayed as each node by referring to the document
group information and the document attribute
25 information.

4. The apparatus according to claim 3, wherein
said document group structure display device
displays the cross-references in each group of
documents in a tree structure in which a combination
5 of an abbreviated name of an author and amount-of-
document information for each document forming part
of the group of documents is displayed as each node
by referring to the document group information and the
document attribute information.
- 10
5. The apparatus according to claim 3, wherein
said document group structure display device
further displays a plurality of topics extracted from
a document contained in each group of documents as
15 associated with each node forming part of the tree
structure displayed for the group of documents.
6. The apparatus according to claim 5, wherein
said document group structure display device
20 displays each topic and a relevant node in a same
color for each group of documents.
7. The apparatus according to claim 3, wherein
said document group structure display device
25 displays with enhancement a node corresponding to a

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for each of the groups of documents and topics obtained by further classifying the groups of documents, a relevant title and a keyword extracted by said topic keyword extraction device and associated with each topic.

9. A relevant document display method for displaying a group of documents containing documents to be cross-referenced, comprising the steps of:

classifying a plurality of documents forming a set of documents into one or more group of documents to be cross-referenced by analyzing a reference between the plurality of documents forming the set of documents;

extracting information about classification as document group information;

extracting a keyword contained in a document forming part of each group of documents by referring to the document group information; and

displaying a title relevant to each group of documents and a corresponding keyword extracted from the group of documents.

10. The method according to claim 9, further comprising the step of:

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displaying with enhancement a group of documents containing a document specified by a user for retrieval, or a keyword specified for retrieval.

- 5 11. A relevant document display method for displaying a group of documents containing documents to be cross-referenced, comprising the steps of:

classifying a plurality of documents forming a set of documents into one or more group of documents
10 to be cross-referenced by analyzing a reference between the plurality of documents forming the set of documents;

extracting information about classification as document group information;

15 extracting document attribute information about an attribute of each document from a plurality of documents forming the set of documents; and

displaying cross-references in each group of documents in a tree structure in which the document
20 attribute information or abbreviated information for each document forming part of the group of documents is displayed as each node by referring to the document group information and the document attribute information.

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displaying with enhancement a node corresponding

項目	1990年	1991年	1992年	1993年	1994年	1995年	1996年	1997年	1998年	1999年	2000年	2001年	2002年	2003年	2004年	2005年	2006年	2007年	2008年	2009年	2010年	2011年	2012年	2013年	2014年	2015年	2016年	2017年	2018年	2019年	2020年	2021年	2022年	2023年	2024年	2025年	2026年	2027年	2028年	2029年	2030年	2031年	2032年	2033年	2034年	2035年	2036年	2037年	2038年	2039年	2040年	2041年	2042年	2043年	2044年	2045年	2046年	2047年	2048年	2049年	2050年	2051年	2052年	2053年	2054年	2055年	2056年	2057年	2058年	2059年	2060年	2061年	2062年	2063年	2064年	2065年	2066年	2067年	2068年	2069年	2070年	2071年	2072年	2073年	2074年	2075年	2076年	2077年	2078年	2079年	2080年	2081年	2082年	2083年	2084年	2085年	2086年	2087年	2088年	2089年	2090年	2091年	2092年	2093年	2094年	2095年	2096年	2097年	2098年	2099年	2100年																																																								
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displaying, for each of the groups of documents and topics obtained by further classifying the groups of documents, a relevant title and a keyword extracted

in said topic keyword extracting step and associated with each topic.

17. A computer-readable storage medium used to direct a computer to perform the steps of:

classifying a plurality of documents forming a set of documents into one or more group of documents to be cross-referenced by analyzing a reference between the plurality of documents forming the set of documents;

extracting information about classification as document group information;

extracting a keyword contained in a document forming part of each group of documents by referring to the document group information; and

displaying a title relevant to each group of documents and a corresponding keyword extracted from the group of documents.

18. A computer-readable storage medium used to direct a computer to perform the steps of:

classifying a plurality of documents forming a set of documents into one or more group of documents to be cross-referenced by analyzing a reference between the plurality of documents forming the set of

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5 an attribute of each document from a plurality of documents forming the set of documents; and

15 19. A relevant document display apparatus for displaying a group of documents containing cross-referenced documents, comprising:

25 input means for inputting a retrieval request

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based on a size of a screen.

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22. The apparatus according to claim 19, wherein
said view generation means allows a user to
5 easily understand an entire structure of a retrieval
result from a document database by simply displaying
a reference tree structure of displayed documents and
information relating to a node corresponding to each
document by selecting only a document containing a
10 large number of references to documents containing a
user input keyword.

23. The apparatus according to claim 19, wherein
said view generation means allows a user to
15 easily understand an entire structure of a retrieval
result from a document database by displaying
reference among displayed documents with a topic
pattern estimated about the documents by said contents
estimation means.

24. The apparatus according to claim 19, wherein
said view generation means allows a user to
easily understand a retrieval result from a document
database related to time information by displaying,
25 in a calendar format, only documents in a specified

Case	Age	Sex	Site	Pathologic	Survival
1	65	M	Rectum	Adenocarcinoma	10 years
2	68	F	Rectum	Adenocarcinoma	12 years
3	72	M	Rectum	Adenocarcinoma	15 years
4	75	F	Rectum	Adenocarcinoma	18 years
5	78	M	Rectum	Adenocarcinoma	20 years
6	80	F	Rectum	Adenocarcinoma	22 years
7	82	M	Rectum	Adenocarcinoma	25 years
8	85	F	Rectum	Adenocarcinoma	28 years
9	88	M	Rectum	Adenocarcinoma	30 years
10	90	F	Rectum	Adenocarcinoma	32 years
11	92	M	Rectum	Adenocarcinoma	35 years
12	95	F	Rectum	Adenocarcinoma	38 years
13	98	M	Rectum	Adenocarcinoma	40 years
14	100	F	Rectum	Adenocarcinoma	42 years
15	102	M	Rectum	Adenocarcinoma	45 years
16	105	F	Rectum	Adenocarcinoma	48 years
17	108	M	Rectum	Adenocarcinoma	50 years
18	110	F	Rectum	Adenocarcinoma	52 years
19	112	M	Rectum	Adenocarcinoma	55 years
20	115	F	Rectum	Adenocarcinoma	58 years
21	118	M	Rectum	Adenocarcinoma	60 years
22	120	F	Rectum	Adenocarcinoma	62 years
23	122	M	Rectum	Adenocarcinoma	65 years
24	125	F	Rectum	Adenocarcinoma	68 years
25	128	M	Rectum	Adenocarcinoma	70 years
26	130	F	Rectum	Adenocarcinoma	72 years
27	132	M	Rectum	Adenocarcinoma	75 years
28	135	F	Rectum	Adenocarcinoma	78 years
29	138	M	Rectum	Adenocarcinoma	80 years
30	140	F	Rectum	Adenocarcinoma	82 years
31	142	M	Rectum	Adenocarcinoma	85 years
32	145	F	Rectum	Adenocarcinoma	88 years
33	148	M	Rectum	Adenocarcinoma	90 years
34	150	F	Rectum	Adenocarcinoma	92 years
35	152	M	Rectum	Adenocarcinoma	95 years
36	155	F	Rectum	Adenocarcinoma	98 years
37	158	M	Rectum	Adenocarcinoma	100 years
38	160	F	Rectum	Adenocarcinoma	102 years
39	162	M	Rectum	Adenocarcinoma	105 years
40	165	F	Rectum	Adenocarcinoma	108 years
41	168	M	Rectum	Adenocarcinoma	110 years
42	170	F	Rectum	Adenocarcinoma	112 years
43	172	M	Rectum	Adenocarcinoma	115 years
44	175	F	Rectum	Adenocarcinoma	118 years
45	178	M	Rectum	Adenocarcinoma	120 years
46	180	F	Rectum	Adenocarcinoma	122 years
47	182	M	Rectum	Adenocarcinoma	125 years
48	185	F	Rectum	Adenocarcinoma	128 years
49	188	M	Rectum	Adenocarcinoma	130 years
50	190	F	Rectum	Adenocarcinoma	132 years
51	192	M	Rectum	Adenocarcinoma	135 years
52	195	F	Rectum	Adenocarcinoma	138 years
53	198	M	Rectum	Adenocarcinoma	140 years
54	200	F	Rectum	Adenocarcinoma	142 years
55	202	M	Rectum	Adenocarcinoma	145 years
56	205	F	Rectum	Adenocarcinoma	148 years
57	208	M	Rectum	Adenocarcinoma	150 years
58	210	F	Rectum	Adenocarcinoma	152 years
59	212	M	Rectum	Adenocarcinoma	155 years
60	215	F	Rectum	Adenocarcinoma	158 years
61	218	M	Rectum	Adenocarcinoma	160 years
62	220	F	Rectum	Adenocarcinoma	162 years
63	222	M	Rectum	Adenocarcinoma	165 years
64	225	F	Rectum	Adenocarcinoma	168 years
65	228	M	Rectum	Adenocarcinoma	170 years
66	230	F	Rectum	Adenocarcinoma	172 years
67	232	M	Rectum	Adenocarcinoma	175 years
68	235	F	Rectum	Adenocarcinoma	178 years
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10 26. The apparatus according to claim 19, wherein
said view generation means allows a user to
easily understand a combination of a question and an
answer corresponding to a question item by instructing
said retrieval engine means to retrieve only a
15 document corresponding to a question and an answer in
a specified topic pattern estimated by said contents
estimation means

27. The apparatus according to claim 19, wherein
20 said view generation means allows a user to
easily understand only an important portion of
reference of documents in a document database by
displaying a specified author at a high intensity
level based on a history of input opinions for each
25 document in the document database and a specified

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pattern of the estimated contents;

inputting a retrieval request corresponding to
the document database from a user;

retrieving a document in the document database;

5 and

generating one or more views using a retrieval
result from said retrieval engine means and the index,
switching the one or more views, and displaying the
views on a display device.

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31. A computer-readable storage medium used to direct
a computer to perform the steps of:

estimating contents of the group of documents
based on contents of a document and patterns of
opinion input by authors from a document database
storing a group of cross-referenced documents;

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generating an index corresponding to a topic
pattern of the estimated contents;

20

inputting a retrieval request corresponding to
the document database from a user;

retrieving a document in the document database;
and

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generating one or more views using a retrieval
result from said retrieval engine means and the index,
switching the one or more views, and displaying the

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views on a display device.

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